Rio Como Vamos: Assessing the Triple Bottom-Line Legacies Being Left by the 2016 Rio Summer Olympic Games

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Rio Como Vamos
Assessing the Triple Bottom-Line Legacies Being Left by the 2016 Rio Summer Olympic Games

Zack Pensak
A thesis submitted in partial fulfillment of the requirements for the degree of Bachelor of Arts Environmental Program & Honors College University of Vermont 2017

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Abstract

The Summer Olympic Games take place every four years and captivate the attention of people all around the globe, with countries competing in various sporting events over the course of a month. The most recent spectacle took place in Rio de Janeiro, the first hosting location in both Brazilian and South American history. Ever since work began in late-2009 in preparation for the Games, the mega-sports event has been embroiled in controversy and critique, mainly centered on the financial woes of the Brazilian economy and apparent rushed construction that was done on the Olympic Park and Olympic Village. Eight months after the end of the Olympics Rio continues to receive extensive media coverage, with many questions remaining as to the future use of these different built infrastructures developed for the Olympics.

By assessing the legacies left by the Olympics through a triple bottom-line approach, judgments can be drawn as to how Rio de Janeiro has been affected since the conclusion of the Games. There certainly have been substantial economic, social, and environmental impacts caused by the large-scale construction that was needed to prepare Rio to host the 2016 Olympics, and many of these consequences are still yet to be fully determined. However, through copious interviews and on-the-ground research done in Rio, it is clear that the 2016 Olympic Games have left both encouragingly positive and starkly negative legacies on the city.
Acknowledgements

I would like to first thank my parents, Eve and Steve Pensak, for heavily persuading me to write a senior thesis, but always encouraging me to passionately find a subject and run with it. Their patience has led me to develop a topic that truly stokes an academic fire within my research.

I also would not have been able to conduct my research without the wonderful help and guidance of Professor Joshua Farley. His knowledge of Brazil and professional contacts in the city of Rio de Janeiro have been vital in providing me with unique interview subjects and general wisdom regarding the ins-and-outs of Rio’s infrastructure.

Generous funding from the Ian A. Worley Award for Creative and Independent Thinking in Environmental Studies gave me an incredible opportunity to travel to Rio de Janeiro this past January for a week of research consisting of various interviews and Olympic-related site visits. If it were not for this trip, I would not have been provided with as informed and in-depth details on the 2016 Rio Games that made up the material for the vast majority of my thesis paper.

Lastly, I must thank my fantastic advisor committee: Professors Brendan Fisher, Amy Seidl, and Joshua Brown. Their incredibly diverse backgrounds helped me shape a project incorporating a variety of perspectives that touch upon many different aspects of environmental studies and related fields. I adamantly believe that the widely different, and at times somewhat conflicting, advices I received from our various meetings allowed me to write a unique thesis with a subject that cannot be put into a solitary box.
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Introduction

Sports are an inherent part of many different cultures around the world. They take place in all communities, from towns in the blazing heat of the Gobi Desert to villages in the freezing cold of the Canadian tundra. The diversity of sports ranges from team-oriented games like hockey, baseball, and rugby to individual activities such as shot put, freestyle swimming, and singles tennis. Humans are captivated by watching sports, playing the part of spectators as they view others compete to reach the pinnacle of their respective passion.

No event in sports is more spellbinding and enthralling for a wide variety of sporting interests than the Summer Olympics. Held every four years, this event captures the attention of the world. Athletes from around the globe come together to compete on the highest stage, striving to be crowned the champion of the sport to which they have dedicated their life. According to the Nielsen Company, the 2012 London Olympics was the most-viewed event in United States television history, with 219.4 million Americans watching the Games on various NBC television channels (TV By the Numbers, 2012). This remarkable viewership proves the incredible power of the Summer Olympics to bring the focus of all people onto a single setting.

When people watch the Olympic Games, their focus is entirely on the different events being held over that month-long period. Many people can recite the medal count, looking at where their respective country stands against other competing nations. The Olympic Games are presented with an incredibly grandiose allure, shown through events like the Opening Ceremony as a massively tantalizing spectacle that brings pride to the host city. However, although the playing of sport is the clear attraction of the Summer
Olympics, an aspect that has long been disregarded is the physical impact the Games have on its hosting community. Particularly, the environmental, social, and economic legacies left by the Olympic Games are at times left in obscure, uncertain circumstances. Cities and countrysides must undergo dramatic physical changes in preparation for the Summer Olympics, with large-scale urban development playing a vital part in creating the built infrastructure that hosts the different sports, houses athletes from around the world, and allows for international visitors to travel to the host city to view the Games first hand. In order to assess the triple bottom-line legacies left by these built infrastructures, it is vital to look at the history of the Olympics, as well as the physical planning and construction that has gone into creating past notable Summer Olympic Games.

Conducting a longitudinal study of past Games will help to develop a basis for judgment of the most recent Summer Olympics: the 2016 Rio Games. This Olympiad was one of the most scrutinized in recent memory, with many international media outlets publishing scathing reports of the built infrastructure preparations leading up to the mega-sports event last August. Before the Rio Games, much of the negative publicity was about the questionable quality of the Olympic Village living situations and last-minute completion of multiple venues in the Olympic Park and other regions of the city. Since the conclusion of the Games, Rio has continued to receive severe critiques, mainly regarding the lack of usage the venues have seen in the eight months since the Closing Ceremony. Although it is true that there has been an issue of immediate renovation and reuse of venues and hospitalities, it is important to look at a wider range of legacies being left by various aspects of urban development done for the Games. By doing research on
the economic, social, and environmental effects that are evolving from the latest Olympic Games, more well-rounded and comprehensive conclusions can be drawn as to its impact on Rio and what it means for future mega-sports events.
Literature Review

**Ancient Origins of the Olympic Games**

The first recorded Olympic Games took place in approximately 776 B.C. From that year forward, they were held every four years between August 6th and September 19th and were named for their host of Olympia, a sacred religious location on the southwestern coast of the country. However, local legends have it that Heracles, the bastard son of Zeus and the mortal woman Alcmene, was the original creator of the Games centuries ago as a tribute to his father, the king of the Gods (History.com Staff, 2010).

The Olympic Games began with just a single event: a sprinted footrace called the *stade*, which is the origin for the modern word “stadium”. The Olympics existed with only one activity for over fifty years, before new races and fighting events began being added (History.com Staff, 2010). There were several important characteristics of the ancient Olympic Games that differ from today’s sporting events of the same name. First, Greeks were the only people who were allowed to compete. The reason for this was the inherent connection the Olympics had to Greek religion. As previously alluded to, the Olympic Games served a dual purpose as both a competitive sporting spectacle and a profoundly religious festival tribute to the most esteemed of all the Greek gods. Second, there were no winter activities in the Games. The climate of southern Greece simply did not allow for a seasonal variety in activities, and there is little to no historical records showing that now-traditional winter sports such as skiing, snowboarding, and hockey had even been invented at the time of the original Olympic Games. Third, there were very strict conditions as to who was allowed to attend the Games. The only competitors were
freeborn male Greek citizens, viewed as the most athletic demographic. Women were allowed to view the events, but on the condition that they were unwed. The place of women in Greek society as the keepers and tenders of the home and family prevented married women from leisurely attending the Olympics even as spectators.

**Modern-Day Reestablishment**

The Olympics continued to be held until 393 A.D. It was in this year, centuries after the Romans had conquered Greece, that the Roman emperor Theodosius I abolished the Games entirely. He claimed that the Games were a direct insult to his Christian beliefs, and that they represented pagan rituals that could not exist in his nation (Rosenberg, 2012). For the next 1500 years there were no sporting events that were organized in the same manner, or contained the same variety of events, as the Olympic Games.

In 1894 a young Frenchman named Pierre de Coubertin arranged a meeting with various representatives from nine countries from around Europe and the Americas. Here he passionately pitched his desire to reinstate the Olympic Games and hold it as a new, international tradition (Guttmann, 1992). After multiple past failed attempts at gathering support for this endeavor, Coubertin succeed, with the delegates voting unanimously to support his plans for Olympic Games to be held two years later. Coubertin was also asked to create a global organization for the arrangement and execution of the Olympic Games, which became the International Olympic Committee. He, along with the multinational representatives chosen for the newly formed IOC, selected Athens as the first host of the modern-Games.
The Expansion of the Olympics

Since the reintroduction of the Olympic Games in the late nineteenth century, the mega-sports event has grown to include more and more countries and participants. This has especially been the case since the 1924 Paris Olympics. Until then, women continued to be barred from participating in the Games. (History.com Staff, 2010). Paris ’24 opened the door to many new athletes who had formerly been subject to gender discrimination. 1924 also marked the first Winter Olympics, which was held earlier that year in Chamonix, France. Although the Winter Games have been consistently held since their introduction, they have never carried the same spectator or participatory weight as the Summer Games. The Summer Olympics reached its peak with 206 countries participating in the 2016 Rio Games this past summer. In comparison, the 88 nations represented at the 2014 Sochi Games was the highest attendance ever for a Winter Olympics. This is heavily due to the seasonal inability of many nations to train for wintry events. Every single Winter Olympics event takes place on either snow or ice, a necessity that a large percentage of countries around the world are unable to accommodate. This is in contrast with the Summer Olympics, which has a much more diverse spectrum of technical and spatial requirements for different events.

Regarding specifically the Summer Olympics, there has been a dramatic increase in participating countries and individual athletes since the end of World War II. As shown by Table 1, the number of participants more almost quadrupled between 1932 and 1952. Since that time, there has never been as a large an increase in participants over a twenty-year period. However, total participants, as well as participating countries, have
continuously risen to the point that the vast majority of nations around the world are sending representatives to participate in the over 300 medal events (MapsXL, 2016).

<table>
<thead>
<tr>
<th>OLYMPIC CITY</th>
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<th>FROM</th>
<th>TO</th>
<th>NO. OF ATHLETES</th>
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<td>Barcelona</td>
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<td>Helsinki</td>
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<td>Los Angeles</td>
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Table 1: Modern Olympic Games Participation (MapsXL, 2016)

The steadily consistent increase in participants has resulted in an increase in the sports offered during the Summer Olympic Games. What began as a somewhat basic series of mainly running and fighting events has developed and expanded to include a wide variety of sports that include discus, badminton, beach volleyball, cycling, and many more. Consequently, with every sport added to the Games, there has been a larger
and more complex demand for facilities and stadiums in which these sports are to be hosted. For example, the 1896 Athens Games required seven venues. Of those seven, only one, the Zappeion, was built specifically for the hosting of the Olympics (Young, 1996). However, in the modern-day, when cities bid to host the Summer Olympic Games, they are doing so with the knowledge that if their bid is accepted, it will oftentimes come with the need for large-scale development and construction of host venues and physical infrastructure. Over the past few decades the expectations for urban development have been raised time and time again, and the advancement in these demands has come with the International Olympic Committee realizing the importance of the environmental sustainability of these built structures (Samuel & Stubbs, 2013).

The IOC’s Adoption of Environmentalism

From its establishment in 1894, the International Olympic Committee always prided itself on existing to represent the importance of two overarching tenants: ‘sport’ and ‘culture’. This changed in 1994, when the IOC signed a cooperative agreement with the United Nations Environment Programme to integrate joint international environmental initiatives into their events (Samuel & Stubbs, 2013). The IOC was making a clear statement with this action, and it followed up this public agreement by consequently adding ‘environment’ as the third pillar of Olympism. Although these were two steps forward, it is important to recognize that the signing of the agreement with the UNEP and the addition of ‘environment’ to the general philosophy of the Olympics was the direct product of a recently disastrous planning and construction effort done by the IOC in rural France.
It became clear that the Games were capable of having profoundly negative impacts on the communities by which they were hosted after the events of the 1992 Winter Olympics in Albertville and the Savoie Region of France. These Winter Games were unique in that they were held at competition sites in thirteen different alpine communities located over the span of 1657 km² (Cantelon & Letters, 2000). Many of these communities were comprised of small, quaint skiing resorts, ones that were not properly adept at hosting a global mega-sports event of that magnitude. As an effect, they required substantial renovation and development in order to provide proper lodging, training facilities, and physical courses for the athletes. The local communities were outraged by the prolonged and extensive disturbances caused by this development, reacting to the construction by organizing multiple protests, including one that took place outside of the Opening Ceremony (Christie, 1992). A great irony of the 1992 Albertville Winter Olympics was that it was envisioned by the IOC to be a glorified “return to the very heart of nature” (Martin, 1992), yet the intensive attempt to successfully accomplish this dream came with severely negative environmental and social ramifications.

Another action that was taken by the IOC after the events of the 1992 Albertville Winter Olympics was the establishment of an internal board specifically dedicated to assessing the triple bottom line aspects of the Olympic Games. In 1996 the IOC Sustainability and Legacy Commission was founded, with the job of advising the IOC Executive Board on, “sustainability and legacy matters to enable them to make informed, balanced decisions that maximize positive impacts, minimize negative impacts and foster positive change and legacies in the social, economic and environmental spheres” (IOC, 1996). In addition, the IOC adopted “Agenda 21: sport for sustainable development”
from the United Nations Conference on Environment and Development in 1992. This led to an amendment in the Olympic Charter that added specific language regarding ‘responsible concern for environmental issues’ and ‘the importance of sustainable development’ (Chalkley & Essex, 1999). As a result of these actions, four years later, the 2000 Sydney Summer Olympics was recognized to be the first Olympic Games that seriously and thoroughly integrated triple bottom-line aspects into the development of their urban infrastructure. This earned them the unofficial title of “The Green Games” and created a new connection between environmentalism and the Olympic Brand (Mincyte, Casper, & Cole, 2009).

**Preparations for the 2000 Sydney Olympics**

In 1993, Sydney, Australia had their bid accepted to be the host for the 2000 Summer Olympic Games. At the time of their successful bid, virtually all of the environmental progress made by the International Olympic Committee during that decade had not even occurred. The IOC had yet to: sign the cooperation agreement with UNEP, adopt UNCED Agenda 21 into the Olympic Charter, add ‘environment’ to their formal documents as the third pillar of the Olympism, or form the IOC Sustainability and Legacy Commission (Samuel & Stubbs, 2013). However, after the events in Albertville the year before and the massive global backlash that resulted, Sydney’s newly formed Olympic Co-ordination Authority recognized that the legacies of future Olympic Games were going to be contingent not only on the visual extravagancy and participatory turnout of the Games, but also on the tangible impacts that the mega-sports event had on its hosting community.
After the acceptance of their bid, the OCA took swift action in preparing for the rapidly approaching Summer Olympics. In 1995 they gained control of a 760-hectare area of land in west central Sydney from the Homebush Bay Development Corporation (Davidson & McNeill, 2012). This was viewed as an extremely ambitious move by the OCA, and not simply because of the immense size of the property they had just obtained. Historically, this specific section of Homebush Bay had been considered one of the worst areas of the city. Starting in the early 20th century, it had been home to a number of chemical factories and shipyards, as well as slaughterhouses producing a significant portion of the meat present in Sydney’s food shops and markets (Davidson & McNeill, 2012). Due to lenient sanitary regulations and a lack of city oversight, the area became a hotspot for unrecorded industrial and domestic dumping in the following decades. When the OCA took control of the site, they immediately performed extensive soil and water tests to gain empirical evidence on how severe the damage was from the last 70 or so years. They found significant contamination of asbestos, dioxin, and various types of synthetic pesticides in both the ground and water sources (Beder, 1993). However, despite the clear roadblocks to development, the OCA, as well as the neighborhood and city governments, viewed the upcoming Olympics as a springboard to invigorate aggressive remediation projects needed to make this area of Homebush Bay a livable and useable community.

The two biggest structural projects that were to take place in Homebush Bay were the construction of the new Olympic Village and Olympic Stadium. Both of these buildings would be situated in the heart of Homebush Bay and act as impressive symbols of the regeneration of the former wasteland area. The Olympic Stadium would serve as
the home for the Opening and Closing Ceremonies, as well as a significant amount of events throughout the Games. However, the majority of the focus was on designing the Olympic Village, as this was to be the home for the athletes during the Games and consequently the infrastructure that would attract the most attention. The Sydney Organizing Committee, the predecessor to the OCA, held a design contest for the Olympic Village in 1992, which was won by the organization Greenpeace Australia (Chalkley & Essex, 1999). Greenpeace designed a plan for the Olympic Village emphasizing multiple eco-friendly building techniques. This included solar power and water recycling, as well as buildings that received all of their heating and cooling from a passive solar design. In addition, the buildings would be put to use after the Olympics had ended, first serving as dwellings for competitors in the Paralympic Games later that year, then being sold or rented as private properties to combat the city’s increasingly high demand for housing (Chalkley & Essex, 1999).

Preparations for the 2012 London Olympics

When London was preparing to host the 2012 Summer Olympics, many developers viewed this as a great opportunity to incorporate members of the local community into the necessary urban development. The plan was that “thousands of jobs would be created in construction, thousands more as the redevelopment moved ahead and created new businesses and communities” (Allen & Cochrane, 2014). The majority of these jobs would exist due to the massive construction demands prevalent in Stratford, a district in East London, for the creation of a brand new Queen Elizabeth Olympic Park. There were to be seven new sporting facilities built in preparation for the 2012 Summer
Games, the masterpiece of which was to be the Olympic Stadium, an 80,000-seat arena that would host the Opening and Closing Ceremonies and track and field events.

The most fascinating feature of the stadium was that the 80,000 seats were to be divided into two sections: a permanent lower section of 25,000 seats and a removable upper section of 55,000 seats (Colorcoat, 2011). The upper section was to be made out of removable layers for potential post-Games reconstruction of the stadium. Although many viewed this as a progressive design idea, others criticized it for actually having a high capacity for future resource misuse. One of the main critics was Amanda Baillieu, the editor-in-chief of Building Design, a British weekly architectural magazine. She argued that in the likely situation that the stadium was renovated after the Olympics, the temporary roof would have to be removed and would not be able to be reused to cover the permanent 25,000 seating area due to its difference in size (Baillieu, 2007). However, although Baillieu’s viewpoint and others similar created concern amongst London architects and designers, the stadium was built to the specifications of the 80,000-seat design.

An interesting characteristic of the Olympic Park was that the design and construction rights to each of the planned structures were given to various private firms. In his book The Courageous State: Rethinking Economics, Society and the Role of Government, author Ryan Murphy described this planning format as, “exemplifying a wider trend in which new private elites are emerging who have become entrepreneurial in obtaining contractual rights to public projects, welfare assets and services… They, in turn, operate in a wider system of regulatory capitalism in which states and major corporations act in each other’s interests” (Murphy, 2011, p. 61). Although this system
seemed to make sense in terms of the rapid short-term progress that was needed in order to prepare large-scale infrastructures for the Olympics, there was concern amongst the general public as to the transparency of the planning of the Olympic Park. Residents of East London districts were especially vocal about their displeasure regarding the wide-privatization of the construction projects, as it was their neighborhoods that would be directly affected by the work done (Raco, 2012). In response to these concerns, the London Legacy Development Corporation was formed in early 2012. This organization was distinctly promoted as a public sector, not-for-profit board with the intention of being responsible for the development, management and preservation of the Queen Elizabeth Olympic Park and its collection of facilities after the London 2012 Games (London Legacy Development Corporation, 2012). The creation of the LLDC was in part an attempt to ease the nerves of many local citizens in giving the public a more precise look into the planning leading up to the 2012 Summer Games.

During the planning for the 2012 Olympics, there were also wider political implications for London’s urban development. East London, similar to Homebush Bay in Sydney, was a historically less advanced area of the city. After winning the bid to host the Games, London’s mayor Ken Livingstone proclaimed, “I bid because it’s the only way to get the billions of pounds off of the government to develop the East End” (Allen & Cochrane, 2014). Livingstone used the awarding of the Olympics to force the British government’s hand in partaking in investment for urban development for the East End of London. This was a fascinating case of intra-governmental pressure being exerted by the mayor of London. The local government worked to use the prospect of the mega-sport event to prompt the allocation of federal funds to a series of local, yet large-scale,
Although London had always been the biggest and most influential city in England, it is remarkable to view this action by Livingstone as showing the immense allure of the prospect of hosting the Olympics in convincing the nation’s government that East London was worth developing.

**Preparations for the 2016 Rio Olympics**

When Rio, in 2009, was awarded the rights to the 2016 Summer Olympics, the bar was immediately set extremely high in terms of the Games having an sustainable triple bottom-line legacy. The Rio Games were set to be the first Olympics ever held in South America. This came with immense pressure, as Rio was provided with the opportunity to bring positive global media attention to not only itself, but also its entire area of the world. To go along with that, ever since environmentalism had been woven into the fabric of the Olympic image during the preparations for the 2000 Sydney Olympic Games, each Bid Organizing Committee had strived to up the sustainability promises made by the previous hosts. After the 2010 Vancouver Winter Olympics BOC promised to hold the ‘first fully sustainable’ Olympic Games, London 2012 followed suit by promising the same thing. Consequently, Rio’s committee decided to up the standards even higher, pledging in its bid to be the first Olympic Games with complete carbon neutrality (Pentifallo, 2012). They followed up that proclamation by dividing their environmental focus into four specific categories: water conservation, carbon neutrality, renewable energy, and waste management/social responsibility. Residents of the city were excited to see the Rio city officials promise to embark on such ambitious environmentally progressive projects. However, there certainly existed a prevailing sense
of apprehension by many members of the city as to the follow-through techniques to be implemented by the city.

As evidence of this concern by city members, groups and organizations were formed as a response to Rio’s Olympic planning on urban development. Protests happened all over the city and were made up of participants from NGOs, social movements, neighborhood associations, and entrepreneurial businesses (Silverstre & De Oliveira, 2012). The main contentions of these protestors were a lack of transparency in management of public expenditures, inadequate involvement of Rio citizens in defining the legacy of the upcoming Olympics, and the coerced, forceful eviction and gentrification of city residents as a result of the plans for urban development and transformation for Olympic infrastructures (Maiello & Pasquinelli, 2015). Many residents believed that Rio did not have the proper spatial arrangements for large-scale urban expansion to allow for new buildings and transportation structures to be built in preparation for the Olympics.

The removal of citizens, whole communities, and important local land came to the forefront as one of the most dominant issues leading up to the 2016 Olympic Games. This removal was done in order to build new infrastructure that was seen to enhance the ability of the city to hold the thousands of athletes and spectators traveling to Rio in the summer of 2016. There were three main removal processes that were evident in 2013 and fought vehemently by protestors (Maiello & Pasquinelli, 2015). The first was the construction, and subsequent large-scale eviction, done for the building of the Transcarioca motorway and the Transoeste highway. This was done as part of a grand plan of improving the urban mobility of the city, as the city had not only the 2016 Summer Olympics to plan
for, but also the influx of visitors that would be in attendance for the hosting of multiple football matches at the Maracanã stadium during the 2014 Brazil World Cup. The second focus of protests was specific to the Summer Olympics and was focused on the development of the environmentally protected area of Marapendi for a new Olympic golf course. This area of the city is part of the Mata Atlântica (Atlantic Forest) biome, an ecosystem spanning much of the eastern coast of the country and containing one of the top four highest biodiversity indexes of any biome on earth (Hodges, 2014). This development was the creation of a full, 18-hole golf course, as well as corresponding facilities and equipment. The third concentration of protesting efforts surrounded the reconstruction and revamping of urban neighborhoods that could be used for tourism attractions and new infrastructure building (Silverstre & De Oliveira, 2012). The Port Maravilha (Marvelous Port) development efforts were of main concern, as these processes were expected to lead to the forced urbanization of favelas in that section of the city. According to Santos Junior and Santos, since the beginning of these urban development projects, 7185 had been removed from their homes (Santos Junior & Santos, 2013).

**Social and Economic Legacies**

Much of the tangible environmental impact of creating built infrastructure for the Summer Olympics is somewhat determined by the time the final construction is completed. For example, in terms of the land allotment that is needed for the infrastructure, as well as the raw amount of resources needed for construction, these figures can be confirmed once the Games are officially underway. However, it is
unrealistic to expect that the complete triple bottom-line legacy of a Summer Olympics can be fully assessed during or immediately after the holding of the Games. Historically, the social and economic legacies left by built infrastructure require long-term analysis and observation.

Key examples of the adverse post-Olympic effects that can occur in a host city are the economics of the 1976 Montreal Summer Olympics. In preparation for these Games, local government officials approved the construction of a brand new, state-of-the-art Olympic Stadium. Although this stadium was then viewed as a visual masterpiece, it is questionable if it has lived up to standards of sustainability and longevity since the 1976 Games. Montreal incurred a debt of nearly $1.5 billion USD after the Olympics, which took almost 30 years to pay off at the partial expense of local taxpayers (CBC News, 2006). The stadium itself has dealt with structural problems ever since the Games, as there have been constant issues operating and repairing the retractable roof. It has also been without a main tenant since the loss of the Montreal Expos in 2004, significantly decreasing the consistency of its use.

In contrast, much of the public has demonstrated reasons for a positive perception of social impacts following the 1976 Montreal Olympics. Manon Barbe, the current Councilor of Sport and Leisure for Montreal, pointed out the work done by the Olympic infrastructure in creating a sporting culture for the city, saying that “Today Montreal has more than 1,000 elite athletics and more than 100 coaches. And if it's that high, it's not a coincidence. It is because we decided to keep most of our sporting facilities” (Newton, 2012). Barbe’s opinion regarding the legacy left by the 1976 Montreal Games is more based upon the public’s post-Olympic use of the built infrastructure than the economics
following the event. This viewpoint is similar to that of Steve Jensen, the Sydney Olympic Park Authority Senior Development Manager. In a 2015 interview, Jensen applauded the further development and use of the Sydney Olympic Park in Homebush Bay. He discussed the thousands of jobs that have come to the Homebush Bay area as a result of the commercial utilization of the Olympic Park. That being said, Jensen did concede that aspirations for environmentally sustainable development may need to be re-defined, especially when considering the somewhat unexpected retail site that began to develop in Homebush Bay in the mid-2000s (Hubble, 2015).

The debt caused by the construction of facilities for Montreal 1976, as opposed to the language of both Barbe and Jensen when speaking on the post-event social utility of the Olympic built infrastructures, shows the multidimensional perspectives that can be taken when assessing the impacts of the Summer Olympics. These different perspectives are very important to consider when judging the legacies of past Games, especially when doing extensive research on those triple bottom-line legacies for the 2016 Rio Games held just eight months ago.

**TBL Used in South America**

The Olympic Organizing Committee for Rio de Janeiro led up to the 2016 Summer Games by making grand promises of sustainability. The assurance to be the first ever carbon neutral Olympics, as well as the seeking of LEED certification for the Olympic Village, spoke to plans for addressing sustainability as a main tenant of the 2016 Games. Before fully delving into work done for the Rio Olympics, it is important to look at other efforts that have been made throughout South America to address issues through
a triple bottom-line assessment approach. The TBL, as a form of comprehensive assessment of activities and businesses, was developed in Europe, Australia, and the United States, so its usage in South America is not widely cited. That being said, there are certainly examples of the triple bottom-line approach being utilized in order to promote sustainability in business practices in the continent.

Mining is an essential part of many South American economies and has long been subject to issues of resource-intensity and access to land and water. Many of the mining regions in the continent are located in arid areas where there is much competition between mining companies and agriculturists for resources. There was one case study done of a mine in Chile that needed to build a water storage facility for potential issues during a drought. However, there was a local farming community of nearly half a million people that lived below the mine and also needed access to vital water resources. By using the triple bottom-line approach they created a solution that would incorporate, economic, social, and environmental benefit for both affected parties. The mining company would construct a water storage tank that for the most part of the year would be utilized by agriculturalists for irrigation. However, the agreement was that during the worst times during a potential drought the mine site would have full access to the water resources (Bond, 2014). The community benefitted because for most of the time they had greater access to water than they would if the water storage facility did not exist. The mining company benefitted by gaining insurance for a water safety net, while also ensuring a social license to operate. This example, although done in a rural area and therefore differing from decisions made for a mega-sports event, shows the positive aspects of information transparency and TBL business-dealings in South America.
It is important to look at the work done in the evaluation of land management and infrastructure in both rural and urban areas when determining the focus of sustainability in regions. The Royal Institution of Chartered Surveyors is recognized as the world's leading professional body for qualifications and standards in land, property, infrastructure and construction, with over 130,000 members worldwide. In 2008 a survey was conducted of RICS members as to how closely they engaged with the organization’s sustainability agenda and the tools they used to achieve objectives of sustainable development. The study claimed that when compared to other areas of the world, sustainability issues had “substantial relevance” in South America. In addition, South American RICS representatives were listed as ‘Leaders’ in sustainability issues of land management and sustainable infrastructure development (Dixon et al., 2008). Work done through TBL business practices directly apply to the sustainability identity of these RISC members and helped establish South America as a progressive area of the world according to this survey. Although this acknowledgement may not represent any specific physical projects, it is important to have people in positions of land management and infrastructure to be recognized for sustainability efforts. These people hold important places in sustainable urban development and prove that South America has people in place that can advance work in TBL-related projects.

Another way by which companies in South America are being shown to incorporate TBL business practices is through the development of Fair Trade. One of Fair Trade’s underlying principles is that it promotes sustainability. Many Fair Trade products come from various South American countries, such as coffee, cocoa, and bananas. The production and sale of Fair Trade items falls entirely within the parameters of triple
bottom-line approaches to business and plays an important part of establishing sustainable identities for businesses working with South American farmers (Stenzel, 2009). The workers involved in the production of Fair Trade goods make a livable wage while producing affordable foods, fulfilling the economic aspect of TBL. Most of the Fair Trade foods are organic, which takes care of the environmental side. Finally, the safe working conditions and fair, legal labor of workers addresses the social equity leg of the triple bottom-line, all together finalizing Fair Trade businesses as being important proponents of TBL.
Methodology

In order to collect information and data on the triple-bottom line legacies left by the 2016 Rio Olympic Games, I partook in semi-structured qualitative interviews with experts in fields ranging from ecological economics, to corporate finance, to conservation assessment. Rio de Janeiro served as the location for my interviews, as I was awarded funding via the UVM Ian Worley Award to travel to Rio and perform my research. Through independent research and contacts given to me by Professor Josh Farley, who previously worked in Rio as a professor of ecological economics, I reached out to and arranged interviews with nine Rio citizens. The list of participants includes Dalcacio da Gama Reis, Cadu Young, Celso Lemme, Eduarda La Rocque, Celina Carpi, Gustavo Pimentel, Alexandre Villas, Pedro Leitao, and Mauricio Santoro.

I comprised a list of eleven sample interview questions that can found in the Appendix section. These questions provided a foundation for the direction of the interviews, all of which relating to the triple bottom-line legacies of the Rio Games. Although I did not use every single question during all my interviews, different questions were utilized depending on the expertise of the specific interview subject. As the interviews were semi-structured, I asked questions not present on the sample list in order to follow the direction of the individual conversations. An important intention of this research format was to gain a wide variety of perspectives on the legacies left by the Rio Olympics, and consequently each interview worked to obtain information particular to that interviewee’s field of expertise.

Another valuable resource that came from traveling to Rio was the ability to create first-hand observations on the built environments made for the Olympics. By
touring and thoroughly scrutinizing these structures and areas, I was able to provide extremely valid information on the current condition and use of infrastructure. Photographs also play a key role in providing evidence for statements made as to the triple bottom-line legacies left by the Games. Photos taken when on-site, as well as ones found in various media sources, help to support field notes from travel around the city.

The interviews and trips throughout Rio inform the Results section of my thesis, which is made up of nine interview summaries. Each summary includes pertinent direct quotes from the interview subject, followed by development of information on the topics discussed. Photos and field notes, in addition to articles from a variety of local and international news outlets, are used in the substantiation of direct quotes. The use of newspaper and electronic articles helps in providing topical information on diverse current events concerning the legacies left by the Rio Olympics. Everyday, relevant news is being published on many of the topics that were discussed during the interviews, so recent news articles provide up-to-date information and varying perspectives.
Results

Dalcacio da Gama Reis

I met my first interview subject at a café in the South Zone neighborhood of Leblon. We elected to sit indoors, despite copious outdoor seating, due to the hundred-degree heat and overwhelming humidity engulfing the city. Reis began our discussion by explaining his role during the Olympic Games. He worked for the Rio Organizing Committee as a Design Manager, specifically in a department called B.R.M that dealt with the design of branding materials as well as other physical assets.

He went on to elaborate on the two main focuses of his pre-Olympic work: the medals and podiums. Both of these two elements of the Games were designed with a heavy emphasis on environmental sustainability.

“The Sustainability Department was very serious about having the gold metals without any mercury,” Reis explained. “It was very difficult to achieve this, but we were able to do so.”

The source of the materials for the medals was a large focal point for the Olympic Sustainability Department. According to a statement on the official Olympic website, “About 30% of the silver used in the Summer Olympic medals [was] recycled waste from leftover mirrors, solder and X-ray plates… Bronze medals [were] made with copper waste from the national mint” (Cheng, 2016). Reis revealed that another prominent source for the bronze medals was local meat houses in the city of Rio. Bronze alloy was taken from machines that were no longer in use, put through an extensive cleaning process, and then welded together to create the medals.
He then proceeded to emphasize the extremely environmentally sustainable intentions for the creation of all paper and wood products for the Olympics. According to Reis, the tickets and podiums for the Games were all made with wood certified by the Forest Stewardship Council. This international non-profit organization provides certification that, “ensures that products come from responsibly managed forests that provide environmental, social and economic benefits,” for extracted timber from forests around the world (FSC, 2017). For the podiums they used Pinus elliottii, a slash pine wood that grows in Paraná, one of Brazil’s southern states. All of the wood harvested was
from reforested areas, a characteristic that provides basis for the FSC certification and further evidence of the Department’s focus on environmental sustainability.

“Speaking about myself, I am very concerned about sustainability issues. I have already published a book about it. And everything we did in designing, we tried to think about sustainability since the beginning,” said Reis. “However, even if you think about it from the beginning it is difficult because it is most likely going to be more expensive to design products that are fully environmentally sustainable. But these were efforts that my bosses and I thought were very important for the Rio Games.”

He made it clear that the medals and podiums were examples of micro-sustainability efforts that were done in preparation for the Olympics. He recognized that obviously people critiquing the Games were far more inclined to focus their attention on
bigger construction projects, such as the development of the Olympic Park or the expansion of the Rio subway line into Barra de Tijuca. However, he felt that the sustainability efforts of the Rio Olympics were getting somewhat unfair criticism, possibly due to the fact that although information is present on the Olympic website, few people know about the sustainability-driven designs for the medals and podiums. This speaks to the reality that mega-structures like venues and city transportation infrastructure garner far more focus from the media than these smaller aspects of the Games.
Cadu Young

My second interview took place in the home of Cadu Young, an Associate Professor of Ecological Economics and Sustainable Development at the Federal University of Rio de Janeiro. When we sat down he immediately delved into his feelings regarding the post-event assessment of the Rio Olympics.

“There are two different debates concerning the legacy of the Olympics. The first is on the financial aspects, and the other is about the consequences of the physical infrastructure that was built there before the Olympics. The financial side is far more controversial because of corruption. And in my opinion, this corruption was happening with or without the Olympics.”

Corruption has existed in Brazil for countless years and has been present in a variety of forms. However, the specific corruption that Young was referring to came to the forefront of Brazilian media in 2012. This came in the form of 25 politicians and businessmen being sentenced to varying jail time from a 2005 scandal called mensalão, which translates to “big monthly stipend”. Protests erupted in early 2013 across Brazil, calling for the immediate imprisonment of these men, all of which were still at liberty and four of which still held seats in Congress (J.H., 2013). These disputes became intertwined with complaints regarding the large-scale investments that were being made in preparation for the 2014 World Cup and 2016 Summer Olympics, as well as a lack of development on public infrastructure that many urban citizens considered to be inadequate.
However, in Young’s opinion, the main issue that was on show during the Olympic Games was not the construction or development of infrastructure, but rather the lack thereof.

“The biggest environmental problem in Rio is the pollution in the Guanabara Bay. The pollution of the bay has to do with not having proper sanitation, and it is very expensive to develop proper sanitation pipes. So people simply throw garbage into the runoff water. This is mainly a problem in hilly areas, specifically favelas around the city.”

He went on to explain how the Olympics provided the city with the opportunity and capacity to confront this problem that has been plaguing Rio for decades. Young understood that people might heavily criticize him for having an anti-favela stance. However, he made it clear that he does not want to come across as vilifying all people that live in favelas around Rio de Janeiro. He recognizes that various favelas do represent an integral part of the cultural identity of the city, and that they are statistically a massive part of Rio. According to a recent study done by Catalytic Communities, an organization dedicated to the development and integration of Rio favelas, approximately 1.5 million people, who make up about 24% of Rio’s total population, live in favelas (CatComm, 2016). That being said, for Young, the hyper-development of Rio’s countless hillsides for the creation of favelas has proven to be an environmentally detrimental and unsustainable trend in the city’s growth. As he mentioned, many of these communities have no way of properly disposing of waste, and as the neighborhoods continue to grow the waste does too. He believes this puts the city municipal government in somewhat of an unfair negative light, as it is unrealistic to expect waste disposal infrastructure to be built as
quickly as the favelas grow. That being said, the failure of the city to make a significant
dent in its waste management deficiencies still produced a negative legacy for the
Olympic Games, where apprehensive sanitary measures for aquatic events such as rowing
shed light on dangerous composition of the bays surrounding Rio.

Young did not feel, however, that the legacy of the Olympic Games could be
assessed by simply looking at one problem that the city had. In fact, he believed that
overall the Olympics left positive legacies for Rio de Janeiro. The main evidence for this
was the redevelopment of the Olympic Boulevard.

“The best thing that happened was the resuscitation of the plan for reviving the
center of the city. This plan was a decades old vision of the city. The vision was centered
on the port area near Lapa. It has now become a wonderful area for families to walk near
the water for free. This is a very positive legacy because it gives opportunity for poorer
people in the North Zone to enjoy leisure in the center of the city.”

Photo 3: The Olympic Boulevard on the western coast of Rio
This speaks more directly to the social aspect of the Olympic legacy. As Young described, the main points of leisure in the city were the beaches of Ipanema, Copacabana, and Leblon in the South Zone. These areas, although open to anyone, were far more frequented by the wealthier citizens living in the South Zone. The generally poorer citizens living in the center of the city and North Zone were historically devoid of large areas of leisure that were well-maintained. The development of the Olympic Boulevard has so far worked to provide one solution to this longstanding problem. Along the Boulevard there are many attractions, including the Museu do Amanhã (Museum of Tomorrow), which can be seen in the image above as the long white building in the background. In addition, people can visit the Rio Aquarium and observe spectacular murals done by the famous Brazilian muralist Eduardo Kobra. These different activities, complimented by a street market taking place every day in the summer, enhance the cultural cohesiveness of the city and provide gathering places for residents of Rio to congregate. The area works to build social capital, a term in the field of civic engagement that “refers to the collective value of all ‘social networks’, [who people know], and the inclinations that arise from these networks to do things for each other” (The Saguaro Seminar, 2016). This intangible development is vital for the reinvigoration and further improvement of any community, especially one stricken with high levels of crime and poverty such as Rio de Janeiro.
Photo 4: Mural by Eduardo Kobra on Olympic Boulevard
Professor Celso Lemme and I met at his office in Instituto COPPEAD Ilha do Fundão, Rio. COPPEAD is the name of the business school of the Federal University of Rio de Janeiro, U.F.R.J. It is commonly regarded as one of the best business schools in Brazil and, despite its extremely modest and somewhat confined structure, is home to many of the top academic business experts in the country. Professor Lemme teaches corporate finance at the university and is well respected in the field of Corporate Social Responsibility. He is a former member of the same thesis advisory panel as Professor Josh Farley in UVM’s Community Development and Applied Economics department.

During an email exchange prior to meeting with Professor Lemme he provided a brief yet clear glimpse into his opinions regarding the Olympic legacies by stating, “I must say that my view on the legacies left by Rio Olympics is not favorable. Do you think our conversation will help your research project?” Immediately upon sitting down with me he reiterated this sentiment, although not without following up with a somewhat contrasting perspective.

“When you ask about the direct physical impact, to be quite frank with you, I do not have a very positive view of the Olympic Games legacy. However, the main legacy in my opinion was to enhance the Rio de Janeiro brand equity, which is so important for a city that needs tourism for its economic health. And I think this was a positive impact.”

Lemme’s thoughts on the topic of Rio’s brand legacy seemed to run parallel with those expressed by Professor Young the previous day. Both professors spoke highly of the work done by the city to redevelop the Olympic Boulevard to be a center for activity and leisure. They described the remarkable physical transformation that area of the city
has undergone in the past decade, from home to some of the poorest and most crime ridden neighborhoods, to now one of the most desired areas of new real estate in the city. The crown jewel of the Boulevard is undoubtedly the *Museu do Amanhã*, a 230 million Brazilian reais ($59m USD) feat of environmentally sustainable architecture that opened in December 2015. The building, designed by Catalan architect Santiago Calatrava, was constructed to use 40% less energy than conventional buildings and is complete with a cooling system that utilizes water from the nearby Guanabara Bay (Watts, 2015).

The interior of the museum is equally as environmentally progressive as the exterior. Visitors first fill into a spherical presentation room to view an eight-minute film that is a sensory masterpiece about the 13.7 billion year history of the universe and biological and ecological changes over time. Outside the room are multiple giant cubes with various visuals showcasing facts about human biology, the natural world, and the development of civilization. People can enter two of the cubes: one of which contains a labyrinth of visual pillars depicting aspects of human intra-species relationships, and the other is speckled with circular screens showing vibrant natural scenes.
Photo 5: Clockwise from top - Interior of first cube with visuals of nature; Exterior of first cube covered in aerial photographs of global geography; Interior of second cube with pillars depicting human relationships; Portside exterior of Museu do Amanhã
Both Professor Young and Professor Lemme expressed admiration for the environmental initiative Rio’s municipal government took with the construction of this remarkable museum. However, similarly to Young, Professor Lemme specifically noted the building’s social capital as its biggest impact on the legacy of the Olympic Games. The difference between the two men was that Lemme believed the most significant effect the museum’s construction had on the city’s social capital was the increase in tourism that came with it, rather than solely the connection it had with the citizens of Rio. Lemme pointed out that the city was very clever and intentional when planning for the building to open in December 2015. He acknowledged that this fell only a year after Rio played host to the World Cup, and about six months before the beginning of the Olympic Games. This point in time fell within the height of international media attention surrounding virtually every aspect of the city. By choosing to open this gorgeous, futuristic museum at that time, Rio was able to make dramatic improvements to both their social and environmental identity. According to a 2013 report, 19.2% of all tourists in Brazil travel to Rio de Janeiro, making tourism a vital component of the city’s economic state (Duran, 2013). As someone who personally had the privilege of spending time on the Olympic Boulevard and visiting the Museu do Amanhã, it was truly astounding to observe how well maintained and aesthetically appealing the area is. In the words of Professor Lemme, “The Olympic Boulevard makes Rio seem like a city in a fully developed country, instead of the largely developing country that Brazil actually is.”

Although the redevelopment of the Olympic Boulevard has come with a certain positive legacy surrounding the Olympic Games, it does not negate the various problems the city is currently facing. Professor Lemme spent the majority of our discussion
speaking about a topic that has been the main focus of international news outlets since the conclusion of the Olympic Games: the lack of current usage of Olympic venues. Lemme spoke in length about the Maracanãzinho, an indoor arena used for Olympic volleyball matches situated adjacent to the Maracanã soccer stadium. This venue has a current capacity of 11,800 people but has held a record attendance of 35,000. However, since the conclusion of the Olympic Games, the Maracanãzinho has not seen any use. This unfortunate reality is for a variety of reasons. First, there is a current lack of financial investment being made by both the municipal government as well as private firms. As interview subject Eduarda La Roque would later elaborate upon, the development of this sector of city infrastructure was done with the hope and expectation of post-Olympic investment from a Public Private Partnership. This combined effort from Rio’s government and private investors would allow for joint ownership and control for the usage of the Maracanãzinho and other similar venues. However, due to the current state of the Brazilian federal government and Rio de Janeiro state government, there has been no commitment of the allocation of funds for this plan. Consequently, this has directly caused an obviously decreasing confidence in the public sector, generating a complete standstill for any sort of investment and continued maintenance of the arenas.

Lemme recognized that the lack of financial and political support for the continued usage of Olympic venues is a serious problem, but seemed to be more bothered by the missed opportunities for these venues to be developed into vital resources for the citizens of Rio to use.

“Rio could become a much better place, and the Olympic Games showed a glimpse of this. We must change the way we think about mega-sports. These events
should be about connections between culture, society, and the environment. We invested approximately 12 billion USD in the Rio Games, now we need to invest in people.”

In the entire city of Rio de Janeiro there are approximately 1,500 schools with over 650,000 students. Professor Lemme believes that the various currently underutilized venues and arenas around the city have the potential to provide students with precious areas for activity and physical stimulation. He does not believe there is a need for these arenas to be converted into brand new schools, but rather into accessible locations for school field trips, practice facilities, and simple leisure time. He adamantly believes it is vital for students to be provided with time and resources with which they can exercise and form social bonds with one another. By giving the arenas, at least partially, back to the city, there will be a great benefit for the younger members of the Rio community who may currently not have access to safe and well-maintained facilities. The potential of these arenas is not for marketing to professional sports teams, Lemme argues, but rather as a great opportunity to educate and involve children in the community. This form of infrastructure can be used by public schools throughout Rio to give students the ability to express themselves through sports and other forms of exercise, which would work to provide areas for stress relief and positive social communal development. However, once again, the lack of investment by the city and seeming lack of initiative to allocate these resources towards the development of student-centered projects prevents these extremely positive potentials from being recognized. Instead, Lemme laments, Rio is left with empty, unused stadiums and students settling for subpar, if not entirely absent, exercise and fitness facilities.
Eduarda La Rocque

When I sat down with Eduarda La Rocque she was between meetings on a Tuesday afternoon at her office in downtown Rio. I was certainly lucky to even schedule a meeting with Ms. La Rocque, as her position as the President of the Pereira Passos Institute (IPP), a branch of the Rio city government, makes her an extremely busy person. The IPP is focused on studying development for urban planning and related public policy in the city. In addition, the IPP works to improve living conditions of the city residents, increase civic participation, and facilitate public sector management. Previously, La Rocque served as the Secretary of Finance for Rio’s municipal government from 2009 to 2012. One of the main focuses during her time as Secretary was to enhance the investment and public-private partnership opportunities for the 2014 World Cup and 2016 Rio Olympics. In 2012, at the end of La Rocque’s term, “Rio was economically booming, which encouraged further ambitious planning for the city government.”

“My job as Secretary of Finance was to increase the income of the city. It is not that we spent too much money on the venues, but the usage models were made before the state [of Rio de Janeiro] fell apart.”

La Rocque described a hypothetical line graph to sketch the expectations and realities of the city of Rio de Janeiro since she began work as Secretary of Finance in 2009.
For the few years after 2009 Rio de Janeiro was in the midst of an exhilarating economic, cultural, and social progression. There were approaching the unique opportunity for an influx of tourism and investment from the two largest sporting events in the world: a host of seven matches for the 2014 World Cup, including the tournament final, as well as the sole host of the 2016 Summer Olympics. As La Rocque illustrated, for the three years or so after winning the bid for the Olympics in October 2009, Rio was on course for an exponential tract of urban improvement. The city was profiled by Forbes in early-2013 as an emerging leader for technological and social progressiveness, and the country of Brazil was identified as one of four nations by a SAP/Harris M2M survey as being the most ready to drive smarter, connected cities (Poonen, 2013). Rio was viewed as an extremely attractive option for financial investment by foreign firms, as well as a location for the development of corporate offices. In La Rocque’s words, “This [optimistic image] allowed the municipal government to put plans for urban development in action that were created nearly 20 years ago.”
Unfortunately, although Rio saw an increase of gross city product in the three years leading up to 2012, income inequality was also rising. Rio de Janeiro is a place infamously known for sprawling favelas covering the hillsides around the city, clear visual reminders of the 22-24% of the city population that live within these areas (CatComm, 2016). Multiple interview subjects spoke of hope amongst the citizenry that the city would concentrate a significant amount of focus on integrating the slums and other undeveloped areas into event planning in the years approaching Rio’s hosting of both their mega-sports events.

Photo 7: A view of a hillside favela in central Rio on the southern fringe of the North Zone
As the Olympic Games approached there was significant work done by La Rocque and other politicians of Rio de Janeiro to try to convince people that politics could be transparent and in the form of a meritocracy. In 2012 the city of Rio hosted the United Nations Conference on Sustainable Development, referred to as Rio+20. This three-day event was an international workshop for discussion of sustainable development financing techniques, improvement of local economic and political transparency, and the adoption of guidelines on green economic policies (U.N, 2012). By most accounts the city was on a very optimistic path, both economically and politically. Unfortunately, 2013 marked the beginning of a national downturn for Brazilian politics and economics, a fall heavily due to an eruption of scandals surrounding many prominent politicians in the Brazilian Congress.

At the center of these scandals is the ongoing investigation called Operation Car Wash, which associated countless Brazilian politicians, the most high profile being former President Luiz da Silva, in taking tens of millions of dollars in bribes from domestic state-owned oil giant Petrobas for rigged, overpriced construction contracts. Lula, as he is simply known, is being accused of masterminding complex bribery and kickback schemes to allow his leftist Workers’ Party to gain political leverage and build coalitions in Congress (Sandy, 2016). The emergence of these allegations set off protests all across Brazil at massive scales, with tens of thousands of people marching in major cities like São Paulo and Rio. This was a turning point in the health of the Brazilian federal economy, as well as that of the state of Rio de Janeiro, where the petroleum industry makes up a huge part of the provincial revenue. Fast forward four years and the
alignment between the city, state, and federal government has fallen apart, with the Rio de Janeiro state governor having declared a state of financial emergency in June 2016.

Although the city of Rio de Janeiro itself is still operating under economically healthy conditions compared to other Brazilian cities, the bankruptcy of the state of Rio severely limits the effectiveness of the city government. That being said, La Rocque spoke to two issues that developed in the preparation for the Olympic Games last summer. First, ex-Mayor Eduardo Paes may have taken on too much of the responsibility for the Games. Of course there were multiple planning committees and city organizations involved in the preparation of the Games; however, La Rocque admits that the mayor took far too much of the authority and at times was unreceptive to aid or divisement of responsibility. She felt that this created a leadership style did not involve enough political discussion between differing city officials, and instead decisions were made before considering perspectives other than Paes’s. This is not the best way to plan with the goal of sustainable development, as outlined four years previous during Rio+20. A large emphasis of the 2012 conference was the need for diverse networks of discussion in the urban planning projects throughout Rio. There was a call for the development of multilevel organizations that would work to provide viewpoints on varying aspects of how the city could be improved in economic, social, and environmental manners. However, with the bulk of the responsibility seemingly assumed by the mayor, this complex and progressive style of leadership outlined at Rio+20 was not put into practice when preparing for the 2016 Rio Olympics.

The straying away from the vision developed during the United Nations conference in 2012 was worsened by the second issue surrounding the preparation for the
Games: a lack of political support for the advancement of Rio’s slums. Instead, Mayor Paes focused housing efforts in the western neighborhood Barra de Tijuca because the land would involve cheaper development than the slum-ridden North Zone. Although this decision made sense in the economic short term, it ultimately creates a double-edged sword. Now, after the Games have ended and much of the temporarily occupied housing in Barra de Tijuca has been emptied, the Rio government is left with more areas to care for, as well as previously existing favelas and other slums.

Despite questions that now surround the future usage of venues from the Olympic Games, La Rocque heavily emphasized the role that the unpredictable political events of the Brazilian government had on creating this current state of uncertainty and negative outlooks. Unfortunately the events of 2013 and 2014 caused an immense distrust in Brazilian politics and significantly hindered Rio’s ability to grow as a city amid the broken federal and state governments. Now in 2017, La Rocque adamantly believes that Rio is in a better place than it was in 2009, but is unfairly viewed as a failed city due to the expectations that formed in the heyday of late 2012/early 2013.
Celina Carpi

Celina Carpi stated her clear opinion regarding the intentions of the Rio Summer Olympics just moments into our Skype conversation.

“The whole idea of having the Olympics in this city was based on the improvement of infrastructure for the people. Of course you had to serve the Olympic environment, but the primary goal has always been to serve the people.”

Carpi has dedicated a large part of her career to initiatives for the improvement of Rio de Janeiro. She currently is a board member of Rio Como Vamos (Rio, Here We Go), a nonprofit organization that works to improve the overall quality of life for citizens of Rio. Her work includes positions that focus on the study and further implementation of business practices centering on the rapidly emerging theme of Corporate Social Responsibility. Through this work Carpi has developed an experienced and critical lens when assessing the environmental and social effects of projects that directly impact the health of the city.

In her opinion, this focus on advancing the infrastructure for the citizens of the city was a massive challenge that has been spoken about for decades, but never fully achieved. An important and unique aspect of Rio is that it heavily differs in physical makeup from places like São Paulo, the only larger city in Brazil. While São Paulo is a sweeping urban metropolis, Rio has always had a mix of natural environment and urban development, with forests and lakes scattered across all areas of the Rio greater metropolitan area. This complex geographical layout makes it very difficult to have a transportation system that incorporates all areas of the city. However, this difficult task was the main goal of Mayor Eduardo Paes in the eight years leading up to the 2016
Summer Olympics, and Carpi believes that the biggest positive lesson to take away from the Games is that Rio can be successful in an eight-year cycle of creating urban developments in the city.

A point made by Carpi, which was also emphasized during my discussion with Eduarda La Rocque, was the many layers of bureaucracy that the Mayor, and other community planning organizations, had to go through in order to develop new areas for the Olympic Games. She spoke about Deodoro Olympic Park, an area in the North Zone that acted as the second largest complex for sporting events. Originally, at the beginning of the planning, the federal government was going to take charge on creating this area. However, after the events of 2013 that led to the economic collapse of the national government, the responsibility for this park was transferred to the city government. Carpi felt as though the Mayor delivered on this important and rushed task, by successfully building the park for the hosting of eleven different Olympic sports.
Carpi did concede one specific glaring issue that was not substantially addressed during the planning for the Olympic Games: the cleanup of Guanabara Bay. She clarified that, “There were no issues during the Olympics for the sailing and other events in the Bay. But we [as citizens] were the ones who lost an opportunity to have that area permanently developed. They were going to deal with the garbage and the sewage; this was the original plan. Unfortunately the state government was not able to coordinate a solution and put in place improvements.” This point reinforces the hindrances that the failures of the Brazilian federal government and government of the state of Rio de Janeiro had on the achievement of goals leading up to the Olympic Games. The pollution of Guanabara Bay has long been recognized as one of the most pressing problems in the city of Rio and the Olympics provided an opportunity to dedicate funding for the addressing of this problem. Once again, when these solutions were developed in the late-2000s,
Brazil was on an extremely positive economic path that would have allowed the Rio municipal government to allocate funds to pertinent projects. Political scandals derailed the reality of these projects, and Carpi feels that Guanabara Bay is left in essentially the same heavily polluted state as it was before the Games began.

As Rio goes forward after hosting the Olympic Games last summer there are still multiple perspectives that can be taken when looking at the new built infrastructure. Carpi is adamant that the physical additions to the city in preparation for the Games have already benefitted many poor neighborhoods across the North Zone. She refers to Madureira Park, a new area of recreation and leisure in the heart of the North Zone. This park served as a viewing station during the Games, with large screens broadcasting the events of the day (Brasiliero, 2016). Before the construction of this park people from the surrounding area had to take a trip upwards of two hours on multiple public transportation lines in order to get to places in the South Zone where they could enjoy outdoor leisure. However, this three-kilometer stretch of park space has provided people with a safer, more relaxed area to spend their free time. That being said, Carpi understands that with every solution provided, people are always pointing out other issues that they believe should be solved.

“The challenge in showing that success is that when you are in an urban area with so many needs, you solve some issues but the list is still huge. The needs [of Rio] are endless. But for a city that in 2008 had no credibility, without pride with which to go for a big event like the Olympics, with people very skeptical that we could pull it off, it was amazing to deliver a Games the way we did.”
**Gustavo Pimentel**

Gustavo Pimentel’s place of business in the South Zone neighborhood of Botafogo is the headquarters of Sitawi Sustainable Finance, a nonprofit that focuses on assessing the social and environmental impact of ongoing projects in Rio de Janeiro and offering loans to organizations and companies throughout Rio fulfilling positive impacts. Pimentel is also a leader for the Sustainable Finance Program, which provides consulting for private investors who are looking to back companies enacting similarly positive change in their community.

Pimentel lives in Ipanema, very close to the expansion of the Metro from the South Zone to Barra de Tijuca in the West Zone. He praised this work done by the Mayor, as it provides citizens with the newfound ability to access this up-and-coming area of the city via a short fifteen-minute ride on the subway. The beachfront of Barra is the largest in the city, stretching for five kilometers, and is a very popular destination due to its separation from the more popular beaches on the other side of the Two Brothers Mountains. Pimentel’s parents reside in Barra and lived through the immense construction that was done to the area. Although there was obviously a large fragmentation of the neighborhood during the years leading up to the Olympics, Pimentel believes that the construction was very positive for Barra.

“The Olympics helped to connect the empty spaces of the sprawling neighborhood that is Barra and provided important infrastructure there. There was a virtually abandoned racetrack that was replaced by the building of the Olympic Park. The way Barra was being developed over the last thirty years seemed to be without much
planning, and I think the Olympic venues actually brought a view of how to develop an urban area.”

One extremely controversial aspect of developing Barra de Tijuca was the displacement of settlements occupied by impoverished members of the Rio community. Many people feel as though the city government was entirely in the wrong when developing these areas in order to replace them with infrastructure for the Olympics. However, Pimentel pointed out that these settlements were often formed when poor people invaded public land and built shanties. Although he admits that the city government is framed in a negative light when they attempt to evict these people after they have lived there for many years, the land technically always belonged to the city and was intruded on by the members of these neighborhoods. Ultimately, he believes the development of the areas was the right thing to do, in spite of the fact that the city should have used more just methods when doing so.

The poster child neighborhood for this type of development is an area called Villa Autódromo, which is situated adjacent to the land dedicated for the Olympic Park. In Pimentel’s opinion, if the city let this settlement exist for twenty or thirty years and allowed people to live there for such a long time, they should have negotiated a solution and made plans to relocate the people to an area that was realistically close to their home. Although some of these people travel to other areas of the city for work, many of them make a living by working in a local shop. Despite the fact that the mayor’s office assisted almost 800 families from the area resettle in alternative housing or new condominiums, many of the people did not want to leave a place they had become so connected with after decades of residency (Charner, 2016). Pimentel claimed there could have been more
transparency, with public hearings and engagement from the community in deciding how the interests of both the city and community could be incorporated when preparing for the Olympic Games.

I asked Pimentel for his opinions regarding the lack of progress on cleaning up Guanabara Bay. Despite the recognition that this stagnant project is widely viewed as one of the largest failures of the Olympic Games, he believes that the majority of people do not fully understand how remarkably difficult a task it is.

“I think it is underestimated the complexity of the governance for water resources in Brazil. You have federal level, state level, and municipal level, and although the Guanabara Bay is under the state of Rio de Janeiro, there are fifteen municipalities around it. So you need to have proper governance involving all of these cities, because if you only work with the city of Rio there will be fourteen other cities still putting sewage into the bay.”

He explains that the cleanup of Guanabara Bay was far too multilayered, both politically and economically, and complex to be finished in time for the Olympic Games. When the expectation, or perhaps unsound hope, that the bay would be in pristine condition by the summer of 2016 was not achieved, Rio garnered a lot of unfair international criticism. Pimentel relates this scrutiny to the negative media attention that Rio continues to receive for the post-Olympic underused venues. He argues that much of this negativity is due to the fact that Rio beat out the likes of Chicago, Madrid, and Tokyo for the rights to host the 2016 Games, and this was viewed as a shock for many of the members of the bid-organizing committees for the losing cities. There has been a significant amount of negative media that both Spanish and American news outlets have
given Rio, and this could very well be a product of jealousy that they were not able to host the Games. International media has somewhat vilified Rio for the problems they have had before and after the Olympic Games, and although there certainly are issues in the city, Pimentel vehemently contends that all Olympic Games have underused venues afterwards. With the Rio Games less than six months ago it is still far too early to label the events as the utter failure that many news outlets already have.

Photo 9: A view of the aquatics arena at the Olympic Park in Barra de Tijuca
**Alexandre Villas**

As the sun set over Barra de Tijuca on the evening of Wednesday, January 18th I sat down in the corporate offices of Carvalho Hosken SA for an exclusive interview with Alexandre Villas. His expertise came in the form of construction management, a position highly valued within the upper levels of his company. Carvalho Hosken SA was one of three companies contracted to do executive construction for the Olympic Park and Olympic Village. They worked to develop these areas as part of a consortium alongside two other Brazilian construction firms: Andrade Gutierrez and Odebrecht. Carvalho Hosken has maintained a clean record of professional business dealings before and after the 2016 Olympic Games, unlike both of the other two firms that have been entrenched in the investigations of the Car Wash operation for the past two years.

Villas went on to describe the logistics of the Olympic Park. Although it is important to note that Carvalho Hosken did not create the visual designs for the Park, which were made by AECOM, an American multinational engineering and design firm, they were in charge of the physical construction of the infrastructure. Carvalho Hosken built the Olympic Park to occupy 1,180,000 m² of land on an area jutting out into the Lagoa de Jacarepaguá in Barra de Tijuca. This area was home to both temporary and permanent venues that hosted ten different Olympic sporting events, ranging from basketball to tennis to gymnastics. The photo below shows the design masterplan for the Olympic Park, with different venues numbered throughout the image. Numbers 01-07 mark permanent venues, which are planned for continued use in the future for various sporting events. Venues 08 and 09 are temporary venues and are currently in the process of being taken down to be replaced by private office buildings.
Villas’s current responsibility is to manage the post-Olympic Games urban development for the area occupied by the Olympic Park. However, it is somewhat put on standstill as there has been a lack of investment interest for the renovation of this area. Although the plans are certainly in place to redesign the Olympic Park into a new community area called *Lagoa de Barra* (Barra Lake), the terrible condition of the Brazilian and Rio de Janeiro state economy prevent Carvalho Hosken from finding an
investor who is willing to go forth with these plans. So, they are left to play the waiting game, with a tentative plan hopefully to be completed in the next 20-30 years: to make the now-unused Olympic Park into a public area complete with a series of residential and commercial buildings, featuring an urban park in the center.

Despite uncertainty on the timing of the construction, the design for the reconstruction of the Olympic Park is very exciting. The most central focal point is possibly the public park that will run down the spine of the Lagoa. This park would take up approximately 90,000 m² of the total area and would be open and welcome to all residents of the city. Besides the permanent venues that would be home to sporting events and training facilities, the majority of the Lagoa would be used to build private commercial buildings as well as places of residence. This addition to the rapidly growing neighborhood of Barra would encourage businesses to create corporate offices in the area and add both human and social capital to this part of the western zone of Rio. These buildings will be built with progressive environmental techniques, similar to the work that was done constructing the Olympic Village, located in an area of Barra called Ilha Pura (Pure Island), managed by Carvalho Hosken.

“The Olympic Village as a neighborhood has LEED certification. We hope that this will be the case once again with multiple commercial buildings in the renovated Olympic Park, and are particularly designing the buildings that were used for media outlets to be LEED Silver certified and also have green roofs.”
In fact, *Ilha Pura* is the first project in South America to earn LEED green building certification for neighborhood development (Athayde, 2015). The Green Building Council, the organization that created and awards LEED certification, has designated the buildings in the Olympic Village with a new form of recognition called AQUA. This green building certification, which was announced in 2014, includes four objectives when rating the sustainability of Brazilian buildings (Coelho, Casagrande, & Martins, 2014):
1. Introduce sustainability in the planning phase of their projects
2. Show stakeholders the power of planning before doing
3. Understand that sustainable building depends strongly on initial planning the project's orientations, to bring in the better architectonic, systems and materials solutions and to use that understanding to project's advantage
4. Comprehend the liaison of AQUA-HQE with the Brazilian Performance of Buildings Standard and with the Brazilian Program of Energetic Labeling of Buildings

The establishment of this certification is done with the intention of raising the standards for new construction across Brazil, and making environmental sustainability a more dominant focus for contractors and construction management companies like Carvalho Hosken. Villas explained that although it may appear to many that sustainability was not necessarily incorporated into the design and construction of the Olympic Park and Olympic Village, it is in the process of becoming a much more important aspect of construction projects in the city. However, like with the case of the Olympic Park, there still needs to be a market interest for investment in the Ilha Pura. A recent announcement from Carvalho Hosken executives on March 20th expressed the hope that the residential units in the Village will be ready to hit the market in June of this year (Belen, 2017). That being said, there is concern the economic crisis that has rocked the entire country will make it frustratingly difficult to find interested buyers for these apartments and condominiums. Henrique Caban, the Chief Marketing Officer for Carvalho Hosken said in a recent interview with The Rio Times that, “Our agenda is in the market. The market is stationary; offering thirty to forty percent rebates and still
nothing sells. It’s no good running around because you’re just going to have to spend money” (Belen, 2017). Unfortunately, similarly to the situation with Lagoa de Tijuca, they are forced to play a waiting game and hope that the economic environment of the state of Rio de Janeiro and country of Brazil improves in the coming months.
Pedro Leitao

Pedro Leitao and I spoke in his Flamengo bayside apartment on a beautiful Thursday afternoon. After opening the windows and turning on a fan to fight the heat of the 100-degree day Leitao introduced himself and described his field of expertise. He is a current researcher and teacher for the National Council for Scientific & Technological Development, an organization of the Brazilian federal government that works to promote research in the fields of science and technology. The focus of Leitao’s work is in the effectiveness of public policy, specifically in the area of conservation. He has also done extensive work with the Amazon Region Protected Areas Program, a project that protects 10% of the Amazon and is currently the largest conservation project in the world.

Although Leitao has not done any work directly pertaining to the Olympic Games, he certainly holds very qualified opinions regarding the legacies being left by the mega-sports event.

“I believe that are two main issues for the urban layout of the Olympic Games. First, the gentrification and social priorities exhibited by the Rio municipal government. Second, the decisions regarding conservation of the environment when preparing for the Games.”

The first problem that Leitao spoke of heavily refers to the displacement of people living in Vila Autódromo, a main topic in my discussion with Gustavo Pimentel. Leitao believes that the city government acted in a dastardly manner when dealing with these people that had lived in the area for multiple generations. Although he did concede that technically the land still belonged to the government, he feels it is absurd to believe they were in the right after not bothering these people for the past few decades. Furthermore,
at the very least the city could have worked alongside the members of this community to relocate them in a nearby area, especially one that does not severely hinder their livelihoods and alter their location within the city. However, this was certainly not considered, as people were backed into a corner and only given a single option as to where they must live. To Leitao, this is a starkly damaging way to approach the situation and creates massive friction within the larger community of Rio de Janeiro. The social capital of the city is significantly diminished when the government treats citizens this way and leads to immediate distrust of the priorities of the administration.

“Eduardo Paes was ruthless in displacing poorer communities of Barra for the construction of infrastructure for the Olympic Games,” Leitao bluntly stated. “His actions displayed an anti-social and arrogant attitude that was remarkably dismissive of criticism of the press.”

He vehemently believes that the priorities of the government were extremely misguided in their direction and scope. There are approximately 6-7 million people living in the North Zone suburban area, a massive part of the city that is largely covered with impoverished, crime-ridden neighborhoods. When people speak of the dangerous side of Rio de Janeiro they are more often than not speaking on news coming out of the North Zone, where the criminal activity and lack of secure police presence is glaring.

Unfortunately, Leitao laments that instead of taking the preparation for the Olympic Games as a opportunity to allocate financial investments in the city to developing this area, focus went to the advancement of Barra de Tijuca. Leitao believes this decision was to have Barra, a generally very wealthy area with less than half the population of the North Zone, as the image of Rio for tourists visiting for the Games.
Leitao’s criticism of the planning for the Olympic Games continued when speaking about the brand new golf course that was built in Barra. First of all, there were two golf courses that already existed in Barra and the surrounding area. Although both courses would have certainly needed some refurbishing to host the Games, these projects would have costs significantly less money than the $26.8 million USD used for the creation of a completely new course. This decision is made more bizarre by the fact that Itanhangá Golf Club, one of Rio’s previously two existing 18-hole courses, ranks on Golf Digest’s list of the 100 best courses outside the U.S.A, and is also just a 20-minute drive from the Olympic Village (Hodges, 2014). Secondly, golf is simply not a popularly played sport in Rio de Janeiro. The long hours of inconsistent movement do not combine well with the perpetually humid weather conditions that are present almost year-round in the city. In addition, Brazil is a country famous for its prowess in team, fast paced sports. Leitao spoke of the Brazilian national soccer and volleyball teams, which are consistently recognized as the best in the world in their respective sports. This historical consistency has allowed citizens to develop fierce identity connections to these teams. The reality is that this type of allegiance simply does not exist in golf, as its structure as an individual game is not conducive to that type of mentality. Due to this variety of reasons, as well as expensive greens fees, the Rio Olympic Golf Course has been massively underused since the conclusion of the Games.
Aside from the financial and social problems surrounding the Olympic Golf Course, there are severe environmental issues that have arisen since its construction. The course was built in an area of Barra that is very close to a protected beach. This worried a lot of people, as the ecosystem surrounding the course is extremely fragile and has already been disturbed quite a bit from the rapid development of the ever-growing Barra neighborhood. This area, which is part of the massive Mata Atlântica (Atlantic Forest) biome, has one of the highest biodiversity indexes in the world, and the specific area of the forest in Barra is home to approximately 300 identified species, many of which are endangered (Hodges, 2014). The ecosystem that was bulldozed over for the construction of the golf course was also home to an important mangrove that served as a buffer zone for the nearby lagoon. This buffer has been all but removed and opens the door to
potential issues of a domino effect of species endangerment. Although Leitao assured that this is not a major disaster in the grand scheme of ecosystem protection in Rio, he is adamant that the construction of this golf course is a decision that should never have been made.

Despite all of the issues in Barra de Tijuca, Leitao believes that there was an even more offensive planning decision made by the city government in the early-2010s. The Maracanã Stadium in the North Zone of Rio has existed for decades as the iconic Brazilian footballing arena. It served as host for eleven games during the 2014 World Cup, including the final between Argentina and Germany. It is one of the most well known stadiums in the world and is regarded as a symbol of the influence that the sport can have on an entire society. Unfortunately, renovations in the late-2000s and 2010 have completely changed the identity of this Rio cultural icon.

“Maracanã was an important social gathering that could fit over 150,000 people with exciting standing areas for people who could not pay for seats,” Leitao reminisced. “In around 2010 Oderbrecht was contracted to change it to a mere [approximately] 50,000 seat ‘European comfortable stadium’. It is now no longer a cultural center for Rio citizens, with business interests having become more important than culture.”

The involvement of the disgraced construction company Oderbrecht, the same one that is under investigation for countless cases of corruption in Operation Car Wash, heavily implies that the financial gain of the Olympic Games was prioritized over the importance that Maracanã has to the community of Rio. Months after the Games have ended the lack of private investment in Maracanã has led it to become the poster child for the abandonment of venues used during the summer events. The grass pitch has almost
entirely dried up and the seats are unclean, with some having been stolen by nighttime bandits. Many people, Leitao included, believe this may be the biggest injustice of the Olympic Games, as a symbolic heart of the city of Rio de Janeiro is at the moment being completely left to rot.

Photo 13: View from the outside of the currently unused Maracanã Stadium
Mauricio Santoro

On the evening of Thursday, January 19th I sat down in a Flamengo coffee shop for my final interview of the trip. Joining me was Mauricio Santoro, a professor of Political Science at the Rio de Janeiro State University. Although federal, state, and local politics had been main subjects of many of my conversations throughout the trip to Rio, he was the only interviewee with formal certification studying Brazilian politics. Naturally, the bulk of the discussion with Professor Santoro regarded the current condition of the political atmosphere at all levels in Brazil.

“First of all, the city of Rio was much more engaged with the Olympics than the national government and state government. The city is not broken, it is not that bad,” Santoro argued. “We cannot blame the Olympics for the [national economic] crisis. But the problem is that from the political point of view, the population of Rio is doing exactly that.”

In a reiteration of what many of the other interview subjects proclaimed, the shock and aftermath of the 2013-14 economic collapse was very unexpected. Although there was certainly reason to believe that the multiple levels of Brazilian governance were going to suffer, few could have predicted a financial rut as severe and sustained as they are currently going through. The monetary problems that were initially instigated by the dipping price in oil, which is the third largest Brazilian export and main resource produced in the state of Rio de Janeiro, were only brutally worsened by the whirlwind of scandals happening at the same time (U.N., 2015). That being said, with oil production not a factor in the city of Rio de Janeiro, these issues have not played as substantial a role in damaging the municipal economy. Tourism is still extremely high in the city, as is
international trade running through the Port of Rio de Janeiro on the western shore of Guanabara Bay. This is Brazil’s third busiest port in terms of cargo volume and has played a large part in establishing Rio as an appealing destination for trade.

Santoro also believes that most of the projects creating infrastructure for the Olympic Games were positive developments and attractive. He specifically mentioned the development of the BRT bus line as an aesthetically pleasing addition to the city’s transportation options. However, it is important to note that the changes improving the city were mainly catering to people who were already in financially comfortable situations. He approximated that roughly 90% of events in the Olympic Games took place in upper middle class neighborhoods. Similar to the criticism given by Pedro Leitao earlier that day, Santoro believed that the physical improvements to the city’s infrastructure were mainly focused on areas away from neighborhoods containing 6-7 million people in the North Zone that most heavily needed immediate development. Although the city was certainly improving in the empirical sense, the capacity to bridge the gap between social classes was not being taken advantage of. Rather, instead, the ironic reality was that many people who were marginally affected by the Brazilian economic issues at the time benefitted from the creation of the BRT and other investments in Rio’s infrastructure, whereas the poorest people were left still empty-handed.

“The city was never well integrated. We like to say that in Rio there are places where poor and rich people get together, like the beach or how Maracanã used to be [before the renovations]. But this is a myth, it is a way we like to think of ourselves. In reality, Rio is very unequal, and this creates the problem of how to desegregate the city.”
Santoro used the mass evictions of Vila Autódromo as a prime example for this type of social injustice that is currently occurring in Rio de Janeiro. He spoke of multiple past mayors of the city that tried to evict the people of this neighborhood from their homes, due to the prime real estate the location of the community near the lagoon provided. The Olympics provided Eduardo Paes with the perfect excuse through which to evict these people, as it was easy for him to claim that the area was vital for the construction of the Olympic Park. Another lesser-covered instance of recent evictions happened in the slum of Morro da Providência in the center of the city with the construction of a cable car system (DellaMonica, 2014). Although framed by Paes to benefit the community itself, as well as increase tourism, many families were displaced to create this public transport. Shockingly, Santoro said that some people suspect as many as 100,000 people were evicted in Vila Autódromo and Providência combined, which if true would be the largest human displacement in Rio history.
When asked about the most negative legacy that was left from the Olympic Games, Santoro immediately stated that, “Even in my worst expectations I never would have foreseen the Maracanã to be in as bad conditions as it is now.” His sentiments once again paralleled Pedro Leitao, as he spoke of the historical, cultural importance of this stadium and the social deflation that has come with its atrocious state. The lack of attention for the revered arena is incredibly disheartening and most likely will not be solved until a public-private partnership forms and provides investment for its refurbishing. The reason that has yet to happen is once again due to the bleak circumstances surrounding multiple economic levels in Brazil. The country is in the worst recession since records of the matter began, with the economy having shrunk 8% since December 2014 and currently 13 million Brazilians without a job (Kennedy, 2017). Although Santoro is somewhat optimistic in thinking that the worst part of the crisis is over, he unfortunately thinks it will be a very long recovery process until they reach the golden years of the late-2000s once again.

The political instability and distrust in the country has led even the most qualified experts to become unsure as to the future for Brazil. Professor Santoro ended our conversation by showing me a Tweet he wrote in May 2016 that went viral, with over 7,000 people reposting it. The message, translated into English, is a simple yet unsettling statement of uncertainty. It reads:

“I’m not a political scientist, but…”

Friends: I have a doctorate in this field and I have no idea what is going on.

Give opinions at will.
Discussion

The socio-economic and environmental legacies of the 2016 Rio Summer Olympic Games are still unclear less than a year since the conclusion of the mega-sports event. There are multiple ways of assessing the positive and negative effects that were caused by the first Olympics hosted on Brazilian soil. In addition, various perspectives must be considered when arguing the benefit or harm of the Games. One way to attempt to make some general conclusions of these Summer Olympics is through a triple bottom-line approach. This incorporation of the economic, social, and environmental aspects of such a multifaceted and complex event allows me to provide as comprehensive a report on my findings on this topic as possible. Although I acknowledge that there are certainly features of the 2016 Rio Olympic Games not entirely addressed by my research, by interviewing a diverse group of nine residents of the city I was able to capture a wide spectrum of views and opinions on how the Games may have impacted Rio as experienced and synthesized by these individuals.

Economic

According to Celso Lemme, the city government of Rio de Janeiro invested approximately $12 billion USD in various projects in preparation for the Olympic Games. As many of my interview subjects pointed out, a large percentage of these funds were dedicated during times of economic prosperity in the city and country. There was legitimate likelihood for Rio to blossom into one of the most up-and-coming cities in the world, so it was entirely valid to believe these funds were being allocated toward projects that would only further improve Rio’s identity and physical makeup. Obviously, the
current economic atmosphere at both the national and state level is drastically different now than it was around circa 2010. That being said, even during the years of increasing economic prosperity leading up to the crash in 2013, there were certainly questions being asked as to who was going to foot the bill for any outstanding debts or repayments the Olympic Games may bring. It is important to note that there were numerous significant private investments that contributed to the creation of venues, infrastructure, and other aspects of the Games. That being said, the amount of money the city of Rio spent to host the Olympic Games should not be understated. This continues to concern citizens of the city who worry their taxes could dramatically increase to supplement the maintenance needed for many parts of the built infrastructure that are currently left abandoned after the Games have ended. In the foreboding words of Marcelo Brandão, a resident of Rio I spoke with during my time in the city, “The bill is going to come. We are going to have to pay for this. There is no free lunch.”

At this point in time it remains to be seen if the tax format for Rio citizens will change to provide the city with post-Olympic financing. Therefore, it is important to assess the current economic state of Rio at the time of this research. Although there are severe financial problems evident throughout the country, the city of Rio is doing relatively well at the moment. There are current avenues of income that come from infrastructure that was developed because of and for the Olympic Games, namely the Olympic Boulevard. This area of the city is extremely well maintained and generally aesthetically pleasing, with artwork and gardens present throughout the large stretch of walkways along the western coast of the port. When visiting the Tomorrow Museum in the center of the Boulevard there was a 20-minute wait on a line stretching almost a
hundred meters out the door, which, along with the constant foot traffic in this renovated
destination, is a sign of the tourism allure the city still has even with the mega-sports
event months in the past.

Photo 15: A section of the Olympic Boulevard walkway

Former Secretary of Finance Eduarda La Rocque’s current position as the
President of the Instituto Pereira Passos (IPP) for Rio’s municipal government gives her
an expert perspective when speaking as to the economic needs of the city. During a
speech given at the 2015 Skoll World Forum in Oxford, England she expressed the
potential of Rio’s Pact, a program through the IPP, for boosting the city economy through
development of urban slums. This program joins information, projects, and action for the
integration of the cities slum’s using Six Powers: public sector, private sector, not-for-profits, academia, multi-lateral organizations, and general city population. La Rocque’s vision for this program, which was launched in December 2014, is to be able to use Public Private Partnerships with the six powers to leave decentralized models that are self-financed and self-motivated in slums. Ex-mayor Eduardo Paes has been heavily criticized for not using the Olympic Games to substantially improve the economic health of slum communities around Rio, and the recent change in leadership means much of this work is dependent on the priorities of Rio’s new mayor Marcelo Crivella. Although the Olympics may have brought an influx of tourism money into Rio, the slums were largely left watching these benefits from the outside. The question now becomes will the new government work to bridge the wealth gap that was left alone during the Olympic Games.

Social

My interview subjects in Rio provided a wide variety of perspectives on how Rio either benefitted or was damaged from the Olympic Games. Both ends of the spectrum were touched in our conversations, with multiple people speaking almost exclusively to the Olympics positive impact on Rio, and others providing scathing reports as to the negative effect the mega-sports event has had on the city. The sole consensus that was found throughout conversations was the unjust nature of the displacement of people in slum neighborhoods of Barra de Tijuca. Multiple interview subjects went into great details as to how Mayor Eduardo Paes acted in an overly aggressive and arrogant manner when dealing with the people of Vila Autódromo and similar neighborhoods. Although the government claimed to have held discussions as to the relocation of these people,
there were many conflicting reports saying that the government forcibly removed people from their communities with very little or no previous warning. Not only that, but the alternative housing options offered by the city, although physically sound locations, were oftentimes 10-20 km from the current neighborhoods in which people had spent decades building their lives.

When driving and biking around Barra de Tijuca I was impressed, yet somewhat unsettled, by the modern-suburban nature of the architecture throughout the area. This appeared to be the most “Western” part of the city I had experienced, and it became quite clear that Barra was being developed to showcase the increasing wealth and status that residents of the city could have. The unnerving aspect of Barra was that it was so drastically different than the other neighborhoods of Rio I had travelled throughout it felt like some sort of façade. This sentiment was echoed in my interviews with Pedro Leitao and Mauricio Santoro, who spoke of Barra’s layout as that of an “American city”.

Although Barra is being developed to be an attractive place for upper-middle class citizens to live, it is not representative of the character of the city of Rio de Janeiro. In addition, millions of Brazilian Reals are being invested on growing this neighborhood while the glaring problem of the decrepit, and at times rampantly unhygienic, slums is not being seriously enough addressed. Eduarda La Rocque stated that approximately 22% of the city’s population lives in slums. Although the Olympic Games may have provided these people with excitement and pride during the summer months of 2016, the emphasis on Barra de Tijuca as the focal point for venues and infrastructure did not help to adequately address their social and economic needs. Pedro Leitao vocalized this issue,
“Unfortunately, after the Games ended, people were forced to go back to their normal lives.”

Just as the eviction of communities is being uniformly recognized as a negative social legacy of the Olympic Games, the development of public transport is widely considered to be an extremely beneficial legacy for the built infrastructure of the Olympics. The main forms of this were the expansion of the BRT bus system and metro lines throughout the city. Many of my interview subjects applauded the increased connectivity of the city due to this project that had been in works since the early-2010s. Although these large-scale developments caused extremely congested traffic conditions during times of peak construction during the past seven years, it was emphasized during conversations that the commute times for citizens have been dramatically decreased since the lines were completed. In addition, the investment in two forms of public transport promotes the social capital of the city, as well as having an environmental benefit of decreasing individual car usage. The expansion of the Rio subway’s 4th Line, as shown in the image below as the yellow track in the South Zone, has given citizens an easy transport to Barra de Tijuca, which has been transformed from a car ride taking up to two hours at rush hour to a simple fifteen-minute ride on the metro. However, the question remains who is mainly benefitting from these improvements to the city’s infrastructure. The Line 4 expansion begins in Ipanema in the southeastern part of the South Zone, a neighborhood that is one of the wealthiest in the city. Although their commuting abilities have been massively improved from the subway expansion, the trend remains that millions of people in the poorer North Zone have not seen the benefits from this urban development.
By far and large the most common focal point of international media regarding post-Olympic topics in Rio is the apparent abandonment of venues used during the Games. Even interview subjects who seemed to generally believe there were positive legacies from the Olympic Games spoke of the current condition of venues like the Maracanã and Olympic Park in horror and disgust. Although the Maracanã holds great importance as a cultural identity symbol for the city, the Olympic Park is a far more glaring example of lack of sustainable planning, as this area was developed specifically for the Olympic Games. It is a vast swath of land that is currently completely unused.
located in a coveted real estate part of the city on the border of a complex ecosystem. The location of the Olympic Park directly on the inner lagoon of Barra makes it adjacent to habitats for wildlife that are native to the region, and the fact that the Park has no current maintenance raises environmental concerns of garbage and other residual waste from the Games running off into the water.

Just a five-minute drive from the Olympic Park is the Olympic Golf Course, another location of significant environmental worry. It is clear from the presence of existing facilities in Barra, as well as the lack of use since the Games, that the course was unneeded and certainly environmentally destructive. The displacement of many native species to this section of the Atlantic Forest biome harmed the fragile ecosystem of the area and replaced their habitats with a golf course, which is an extremely ecologically homogenous manmade environment. Only time will tell if this golf course continues to exist in the area, albeit with the expectation that there is not likely to be an increase of use from its current state. Regardless, although the construction of the golf course is not being labeled as a terrible environmental tragedy, its puzzling construction may be representative of priorities of the city government for suburban development over environmental and ecosystem conservation.

Despite the troubling state of the Olympic Park and Golf Course, there are positive environmental legacies that are being left by the 2016 Rio Olympic Games. The Olympic Village is an impressive accomplishment for the city and the private firm Carvalho Hosken, which managed the construction of the area. As previously mentioned the Olympic Village is the first neighborhood in South America to be entirely LEED-certified, with buildings that have been awarded the new AQUA designation. This
infrastructural complex demonstrates the potential of green urban development, with renovations finishing up to hopefully have the *Ilha Pura* neighborhood available for residential usage by the summer. However, there are similar anxieties surrounding future real estate investments for both the Olympic Village as there is with the Olympic Park. Both of these two areas have exciting potential to become destinations that would push the envelope for eco-friendly, environmentally progressive urban development in Rio de Janeiro. Their future does heavily rely on the improvement of both the politics and economy of Brazil for current plans to be achieved. Along with a revamped, stimulated economy there is a need for bottom-up development as a next step to continuing necessary urban development throughout the city. Eduarda La Rocque spoke to this essential by saying that as a city, “We need cooperative agreements between the Six Powers based on qualified information [on specific neighborhoods]… We need to distribute in order to grow.” By creating work collectives that involve members of different sectors of society, cohesive goals can be created to initiate further green development of Rio.

On the other side of the city, the redevelopment of the Olympic Boulevard proved the capacity for the green urban development. This section of the Centro neighborhood was transformed from being a grimy area to an extremely modern, bustling location covered in urban gardens and public parks. In addition, the exhibits within the stunning new Tomorrow Museum purvey concepts of environmentalism and green technology. When traveling throughout the Boulevard it is easy to think that Rio de Janeiro is on the cusp of becoming a city filled with first-world infrastructure, which, although being far from the truth, represents a significant level of intention by the city. When plans for
infrastructural development were made in 2009 after winning the rights to the recent Olympic Games, the city saw the potential for growth at levels that had never been achieved before in Rio. Environmental improvements played an integral part in these plans, and despite the reality that there is still much work to be done in improving environmental conditions around Rio de Janeiro, some positive environmental legacies are already being seen.

*Closing Thoughts*

Now, eight months after the conclusion of the 2016 Rio Summer Olympic Games, there is certainly a mix of positive and negative legacies left in all three categories of the triple bottom-line approach. Economically, Rio experienced a tourism revenue boom typical during periods of hosting the Olympics, and the municipal government developed parts of the city to cater to an increase in tourism. Significant investments were made to create what is now the Olympic Boulevard, and this beautiful, modern area of the city promises to attract tourists and locals alike for the foreseeable future. In addition, economic experts such as Eduarda La Rocque are working diligently to create models for future hybrid investment platforms, namely the Six Powers and Public Private Partnerships. These plans, originally introduced at the 2012 United Nations Conference on Sustainable Development, give hope to the advancement of transparency and cooperation in business dealings between the public and private sectors.

Socially, the extension and redevelopment of forms of public transportation provide citizens and tourists alike with more efficient ways of traveling throughout Rio. The expansion of the Rio Metro was an essential way of establishing Barra de Tijuca as a
new area of suburban growth and housing efforts for Rio citizens. That being said, the lack of attention given to improving many of the slums throughout the North Zone and other parts of the city was a missed opportunity that leaves millions of Rio citizens to wonder if the Olympics benefitted them at all. It is a legitimate concern that the capacity to develop these poorer neighborhoods may have passed for the time being, with the economic woes currently being incurred by state of Rio de Janeiro hindering investment opportunities for the government and private firms.

The environmental benefits of public transportation and environmental ethos that is inherent in the Tomorrow Museum and rest of the Olympic Boulevard represent capabilities for further green legacies to be made in Rio. However, there is a substantial gap between the current state of much of the Olympic built infrastructure and the potential long-term legacies that can been seen 20-30 years from now. The Olympic Park, Olympic Village, and venues in Deodoro and Maracanã are all currently either underused or completely unused. This has caused a lot of justified outrage as to the apparent land and resource mismanagement by city Olympic planners. That being said, the LEED and AQUA certifications in the Olympic Village, as well as the exclusive redevelopment plans for the Olympic Park that Alexandre Villas showed me, provide hope for significant positive long-term environmental legacies being left by the Olympic Games.
Conclusion

The triple bottom-line legacies of the 2016 Rio Summer Olympic Games speak to the larger picture of various characteristics and layouts for mega-sports events. It is clear that when in the process of preparing for a spectacle of this magnitude, cities must give extensive consideration to the economic, social, and environmental repercussions of their planning decisions. Although there will inevitably be involved parties that feel as though they did fully benefit from their city hosting the event, it is vital that city governments and organizing committees work to provide transparency and clear positive intentions for the well-being of the local citizens. In addition, the built infrastructure and any further urban development leading up to the mega-sports event must be done with long-term sustainability goals in mind. It is clear that past planners and designers have struggled with creating reusable, multipurpose venues, and this quality for infrastructure is integral in sustainable urban development. The politics and economics of a country or city are dynamic and ever-changing, as shown by events leading up to and following Rio 2016, and this unpredictability should be considered when in the planning process. That being said, planning decisions that work towards the betterment of the city’s population, as well as an emphasis on long-term sustainable infrastructure rather than simply physically eco-friendly structures, are necessary focuses for any hosting location for a mega-sports event.
Appendix

Sample Interview Questions

1. Can you describe the infrastructure present in [name] community prior to work begun on the 2016 Rio Olympics?

2. Were members of the community notified and consulted as to the changes that were to take place for the construction?

3. Do you believe that there were adverse environmental effects caused by this construction? If so, please elaborate.

4. Are there plans in place for future use of the built infrastructure? If so, what?

5. In your opinion, did the idea of “sustainability” play a large part in the planning for this 2016 Olympic infrastructure?
   a. If yes: How was this concept implemented in planning strategies?
   b. If no: Why? Do you believe this lack of attention was intentional or involuntarily ignored

6. Do you believe Rio was fit to host the Olympics?
   a. Environmentally
   b. Financially

7. What are some general feelings from members of the Rio community as to the positive or negative impacts the Olympics have had?
8. What is the next step for Rio going forward?  
   a. Built infrastructure  
      i. Future use, redevelopment  
   b. Politically  
   c. Socially  
   d. Environmentally  
   e. How have the OGs caused this prediction?  

9. Has the Olympic Games represented more than just a global spectacle for citizens?  

10. Do you believe the controversies that have been an effect of the Olympics Games could be an instigator for needed change?  
    a. Positive or negative  

11. What direct, physical impacts has the hosting of the Olympic Games had on Rio? What indirect (more social or cultural)?
Consent for Participation in Interview Research

I volunteer to participate in a research project conducted by Zack Pensak from the University of Vermont. I understand that the project is designed to gather information about the triple bottom-line legacies left by the 2016 Rio Olympics. I will be one of approximately 9 people being interviewed for this research.

1. My participation in this project is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without penalty. If I decline to participate or withdraw from the study, no one on my campus will be told.

2. I understand that most interviewees involved will find the discussion interesting and thought-provoking. If, however, I feel uncomfortable in any way during the interview session, I have the right to decline to answer any question or to end the interview.

3. Participation involves being interviewed by a solitary researcher from the University of Vermont. The interview will last approximately 30 minutes - 1 hour. Notes will be written during the interview. An audio tape of the interview and subsequent dialogue will be made. If I don't want to be taped, I will notify the interviewer prior to the interview beginning. I can ask to review notes and recordings made from this interview.

4. I understand that the researcher will have the choice to identify me by name in his report using information obtained from this interview. Subsequent uses of records and data will be subject to standard data use policies, which protect any desired anonymity of individuals and institutions.

5. I understand that this research study has been reviewed and approved by the Institutional Review Board (IRB) for Studies Involving Human Subjects: Behavioral Sciences Committee at the University of Vermont. For research problems or questions regarding subjects, the Institutional Review Board may be contacted through the following information: +1(802) 656-5040 by telephone or +1(802) 656-8604 by fax

6. I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.

7. I have been given a copy of this consent form.

My Signature ______________________ Date ______________________

My Printed Name ___________________ Signature of the Investigator ___________________
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